Peterson, A. 1957. Ibid. Part II. Coleoptera, Diptera, Neuroptera, Siphonaptera, Mecoptera, Trichoptera. Edward Brothers, Inc., 416 pp.

J. New York Entomol. Soc. 96(2):247–248, 1988

The Butterflies of Costa Rica and Their Natural History. Papilionidae, Pieridae, Nymphalidae.—Philip J. DeVries. 1987. Princeton University Press. 327 pp. Prices: $60.00 cloth; $22.50 paper.

Phil DeVries has written an extremely important work, possibly the best field guide available for any group of Neotropical organisms. It sets a new standard for butterfly guides. The first chapter discusses biology and systematics of butterflies. Included are some rather unusual speculations concerning wing pattern development and mimicry. In chapter two, the major faunal regions and butterfly diversity of Costa Rica are described. The following chapters constitute a field guide to Costa Rica's butterflies, broken down by family. Diagnoses are given for each family, subfamily, genus and species. Included in the field guide section are over 50 pages of color plates showing dorsal and ventral views of adult butterflies, and close to 20 pages of line drawings showing immature stages.

The book derives its strength from several things: First, the color photographs of adult butterflies and line drawings of immatures are superb. Since field identification is the book's main function, the color plates alone make it a success. I lack the knowledge to evaluate whether each taxon DeVries treats is accurately named and identified, but since he spent much time studying the butterfly collection at the British Museum and consulting with the experts there, one can have considerable confidence that they are. Secondly, DeVries provides all the available distributional, habitat, and life history data for Costa Rican butterflies. The quality and quantity of this information will make those interested in other Neotropical insect groups envious. Many of the hostplant records and life histories were collected by DeVries himself, and are listed in an earlier paper (DeVries, 1985). A tremendous amount of field knowledge has obviously gone into this guide. DeVries seems to have an understanding and appreciation for the land of Costa Rica that can only come from time and effort. Thirdly, although DeVries did not intend to provide a complete literature for the taxonomy and biology of Costa Rican butterflies, the bibliography is well selected and extremely comprehensive. It will provide a useful reference for people interested in all aspects of butterfly biology. In conclusion, I can only say that DeVries' book is a must-to-have for any student of the Neotropics.

As a reviewer, I hate to heap too much praise on someone's work. It's just not good policy. Here are my criticisms:

The chapter on general biology, morphology, and systematics of butterflies is written for a beginning amateur, and is probably too basic for most of those who will buy the book. The quality of treatment for these subjects is not lower than that found in other field guides, but it is not very good in any of them. The section as a whole could have been greatly shortened without much loss of important information.

Within the sections on each family, characters that DeVries lists to define groups are usually plesiomorphic, rather than being traits unique to a particular group. For example, the Papilionidae are "distinguished by six walking legs that bear nonbifid

claws; forelegs that bear an epiphysis;" (p. 61), and on it goes. These traits are also handy for distinguishing Lepidoptera from caddisflies, or insects from monkeys. Such is the field guide approach; it is adequate when identification is the sole aim.

One of the book's most important features is the detailed distributional and habitat data, but the two maps provided are not of high enough quality to make the most of this information. In addition to these general maps, I would like to have seen a series of high quality, detailed maps included, showing topography, vegetation types, etc.

DeVries adopts what I consider to be intelligent butterfly classifications. For example, *Papilio* is retained as a single genus, and Nymphalidae is recognized in the broad sense. However, there are indications in the book that DeVries' rapport with the systematic community could use improvement. He is troubled by the "strong component of emotionalism or even fanaticism in the "war" among various factions" (p. 32) of systematists, referring here to the evolutionary, phenetic, and cladistic "factions." It sounds sort of frightening, doesn't it? Something akin to the Persian Gulf. I take issue with his statement, being of the opinion that this "jihad" has produced some of the most significant advances in comparative biology since, oh say, the advent of the pencil. But of course I happen to belong to one of these terrorist cells, and am therefore seeing the picture through crazed eyes.—*James S. Miller, Department of Entomology, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.*

LITERATURE CITED

DeVries, P. J. 1985. Hostplant records and natural history notes on Costa Rican butterflies (Papilionidae, Pieridae & Nymphalidae). J. Res. Lepid. 24:290–333.

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The Lives of Butterflies.—Matthew M. Douglas. 1986. University of Michigan Press, 241 pp. $45.00.

The study of butterflies has made important contributions to the development of systematics, evolutionary biology, and ecology. Using mainly temperate American examples this book selectively summarizes the biology of butterflies with the aim of providing professional biologists and graduate students a literature base for further research.

After an introduction to contemporary theories about the evolution of insect wings, the formal text begins with a treatment of the phylogenetic origins of the butterflies. Douglas then proceeds to discuss the morphology and physiology of both early stages and adult butterflies, and then covers topics relevant to behavior, population and community ecology, and population genetics. The book concludes with a chapter on coevolution of butterflies and plants, and a postscript encouraging future research. Throughout the text Douglas admirably maintains a strong evolutionary perspective. Two appendices are included that illustrate the geologic time scale and present a list of some butterfly species used in research (both appendices could be deleted without loss to content). The bibliography contains many solid references essential to doing